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1 [Lightweight time synchronization for sensor networks](#)

 Jana van Greunen, Jan Rabaey

 [September 2003](#) [WSNA '03: Proceedings of the 2nd ACM international conference on Wireless sensor network and applications](#)

Publisher: ACM

Full text available:  [PDF \(1.38 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [reference terms](#)

Bibliometrics: Downloads (6 Weeks): 9, Downloads (12 Months): 110, Citation (

This paper presents lightweight tree-based synchronization (LTS) methods for sensor networks. First, a wise synchronization scheme is analyzed. This scheme requires the exchange of only three messages and has good error properties. ...

Keywords: lightweight, multi-hop, spanning tree, synchronization

2 The costs and limits of availability for replicated services

◆ Haifeng Yu, Amin Vahdat

February 2006 ACM Transactions on Computer Systems (TOCS), Volume 24 Issue 1

Publisher: ACM

Full text available: [PDF](#) (718.65 KB)

Additional Information: [full citation](#), [abstract](#), [reference](#), [review](#)

Bibliometrics: Downloads (6 Weeks): 18, Downloads (12 Months): 185, Citation (

As raw system performance continues to improve at exponential rates, the utility of many services is shifting from performance to availability rather than performance. A key approach to improving availability involves replicating data in multiple locations. ...

Keywords: Availability, continuous consistency, network services, replication, trade-off, upper bound

3 Byzantine disk paxos: optimal resilience with byzantine shared memory

◆ Ittai Abraham, Gregory V. Chockler, Idit Keidar, Dahlia Malkhi

July 2004 PODC '04: Proceedings of the twenty-third annual ACM symposium on Principles of distributed computing

Publisher: ACM

Full text available: [PDF](#) (253.82 KB)

Additional Information: [full citation](#), [abstract](#), [reference](#)

terms

Bibliometrics: Downloads (6 Weeks): 11, Downloads (12 Months): 24, Citation C

We present Byzantine Disk Paxos, an asynchronous shared-memory consensus protocol that uses a disks, t of which may fail by becoming non-responsive or arbitrarily corrupted. We give two constru

Keywords: Byzantine failures, consensus, shared-memory emulations, termination conditions

4 Self-stabilizing clock synchronization in the presence of Byzantine faults

◆ Shlomi Dolev, Jennifer L. Welch

◆ September 2004 Journal of the ACM (JACM), Volume 51 Issue 5

Publisher: ACM

Full text available: [PDF](#) (151.98 KB)

Additional Information: [full citation](#), [abstract](#), [reference terms](#), [review](#)

Bibliometrics: Downloads (6 Weeks): 6, Downloads (12 Months): 92, Citation C

We initiate a study of bounded clock synchronization under a more severe fault model than that proposed by Chandra and Melliar-Smith [1985]. Realistic aspects of the problem of synchronizing clocks in the presence of faults are considered. One aspect ...

Keywords: Byzantine failures, clock synchronization, self-stabilization

5 Practical byzantine fault tolerance and proactive recovery

◆ Miguel Castro, Barbara Liskov

◆ November 2002 ACM Transactions on Computer Systems (TOCS), Volume 20 Issue 4

Publisher: ACM

Full text available:

Additional Information: [full citation](#), [abstract](#), [reference terms](#), [review](#)

 [Pdf \(1.63 MB\)](#)

[terms, review](#)

Bibliometrics: Downloads (6 Weeks): 38, Downloads (12 Months): 339, Citation

Our growing reliance on online services accessible on the Internet demands highly available system service without interruptions. Software bugs, operator mistakes, and malicious attacks are a major interruptions ...

Keywords: Byzantine fault tolerance, asynchronous systems, proactive recovery, state machine re transfer

6 [ODSBR: An on-demand secure Byzantine resilient routing protocol for wireless ad hoc networks](#)

 Baruch Awerbuch, Reza Curtmola, David Holmer, Cristina Nita-Rotaru, Herbert Rubens
January 2008 ACM Transactions on Information and System Security (TISSEC), Volume 10

Publisher: ACM

Full text available:  [Pdf \(2.02 MB\)](#) Additional Information: [full citation](#), [abstract](#), [reference](#)

Bibliometrics: Downloads (6 Weeks): 30, Downloads (12 Months): 240, Citation

Ad hoc networks offer increased coverage by using multihop communication. This architecture makes them vulnerable to internal attacks coming from compromised nodes that behave arbitrarily to disrupt the network referred to as Byzantine ...

Keywords: Ad hoc wireless networks, byzantine failures, on-demand routing, security

7 [PeerReview: practical accountability for distributed systems](#)

 Andreas Haeberlen, Petr Kouznetsov, Peter Druschel
October 2007 SOSP '07: Proceedings of twenty-first ACM SIGOPS symposium on Operating system

Publisher: ACM

Full text available: [PDF \(363.72 KB\)](#) Additional Information: [full citation](#), [abstract](#), [reference](#)

Bibliometrics: Downloads (6 Weeks): 14, Downloads (12 Months): 239, Citation

We describe PeerReview, a system that provides accountability in distributed systems. PeerReview ensures that Byzantine faults whose effects are observed by a correct node are eventually detected and irrefutably attributed to a faulty node. At the same time, ...

Keywords: accountability, byzantine faults, distributed systems, fault detection

8 [PeerReview: practical accountability for distributed systems](#)

◆ Andreas Haeberlen, Petr Kouznetsov, Peter Druschel

October 2007 ACM SIGOPS Operating Systems Review, Volume 41 Issue 6

Publisher: ACM

Full text available: [PDF \(363.72 KB\)](#) Additional Information: [full citation](#), [abstract](#), [reference](#)

Bibliometrics: Downloads (6 Weeks): 14, Downloads (12 Months): 239, Citation

We describe PeerReview, a system that provides accountability in distributed systems. PeerReview ensures that Byzantine faults whose effects are observed by a correct node are eventually detected and irrefutably attributed to a faulty node. At the same time, ...

Keywords: accountability, byzantine faults, distributed systems, fault detection

9 [Bimodal multicast](#)

◆ Kenneth P. Birman, Mark Hayden, Oznur Ozkasap, Zhen Xiao, Mihai Budiu, Yaron Minsky

May 1999 ACM Transactions on Computer Systems (TOCS), Volume 17 Issue 2

Publisher: ACM

Additional Information: [full citation](#), [abstract](#), [reference](#)

Full text available: [PDF](#) (302.06 KB) [Terms](#)

Bibliometrics: Downloads (6 Weeks): 8, Downloads (12 Months): 166, Citation C

There are many methods for making a multicast protocol "reliable." At one end of the spectrum, a reliable protocol might offer tomoicity guarantees, such as all-or-nothing delivery, delivery ordering, and per message delivery properties ...

10 Contention in shared memory algorithms

◆ Cynthia Dwork, Maurice Herlihy, Orli Waarts

◆ November 1997 *Journal of the ACM (JACM)*, Volume 44 Issue 6

Publisher: ACM

Full text available: [PDF](#) (154.50 KB)

Additional Information: [full citation](#), [abstract](#), [reference terms](#), [review](#)

Bibliometrics: Downloads (6 Weeks): 9, Downloads (12 Months): 88, Citation C

Most complexity measures for concurrent algorithms for asynchronous shared-memory architecture are steps and memory consumption. In practice, however, performance of multiprocessor algorithms is limited by contention, ...

Keywords: contention, counting networks, mutual exclusion

11 User-level internet path diagnosis

◆ Ratul Mahajan, Neil Spring, David Wetherall, Thomas Anderson

◆ December 2003 *ACM SIGOPS Operating Systems Review*, Volume 37 Issue 5

Publisher: ACM

Additional Information: [full citation](#), [abstract](#), [reference terms](#)

Full text available: [Pdf \(403.57 KB\)](#) [terms](#)

Bibliometrics: Downloads (6 Weeks): 9, Downloads (12 Months): 97, Citation C

Diagnosing faults in the Internet is arduous and time-consuming, in part because the network is composed of components spread across many administrative domains. We consider an extreme form of this problem with no special privileges, ...

Keywords: measurement tools, path diagnosis

12 Transactional file systems can be fast

Barbara Liskov, Rodrigo Rodrigues

September 2004 EW11: Proceedings of the 11th workshop on ACM SIGOPS European workshop

Publisher: ACM

Full text available: [Pdf \(93.96 KB\)](#) Additional Information: [full citation](#), [abstract](#), [reference](#)

Bibliometrics: Downloads (6 Weeks): 2, Downloads (12 Months): 46, Citation C

Transactions ensure simple and correct handling of concurrency and failures but are often considered a performance bottleneck in file systems. This paper argues that performance is not a barrier to running transactions. It presents a mechanism that ...

13 User-level internet path diagnosis

Ratul Mahajan, Neil Spring, David Wetherall, Thomas Anderson

October 2003 SOSP '03: Proceedings of the nineteenth ACM symposium on Operating systems principles

Publisher: ACM

Full text available: [Pdf \(403.57 KB\)](#) Additional Information: [full citation](#), [abstract](#), [reference](#)
[terms](#)

Bibliometrics: Downloads (6 Weeks): 9, Downloads (12 Months): 97, Citation C

Diagnosing faults in the Internet is arduous and time-consuming, in part because the network is composed of components spread across many administrative domains. We consider an extreme form of this problem with no special privileges, ...

Keywords: measurement tools, path diagnosis

14 On fairness in simulability-based cryptographic systems

◆ Michael Backes, Dennis Hofheinz, Jörn Müller-Quade, Dominique Unruh

◆ November 2005 FMSE '05: Proceedings of the 2005 ACM workshop on Formal methods in security

Publisher: ACM

Full text available: [Pdf \(276.43 KB\)](#) Additional Information: [full citation](#), [abstract](#), [reference](#)

Bibliometrics: Downloads (6 Weeks): 0, Downloads (12 Months): 18, Citation C

Simulability constitutes the cryptographic notion of a secure refinement and has asserted its position as a fundamental concept of modern cryptography. Although simulability carefully captures that a distributed system should not behave ...

Keywords: cryptographic protocols, fairness, scheduling, simulability

15 Efficient fork-linearizable access to untrusted shared memory

◆ Christian Cachin, Abhi Shelat, Alexander Shraer

◆ August 2007 PODC '07: Proceedings of the twenty-sixth annual ACM symposium on Principles of distributed computing

Publisher: ACM

Full text available: [Pdf \(359.46 KB\)](#) Additional Information: [full citation](#), [abstract](#), [reference](#)

Bibliometrics: Downloads (6 Weeks): 6, Downloads (12 Months): 81, Citation C

When data is stored on a faulty server that is accessed concurrently by multiple clients, the server returns inconsistent data to different clients. For example, the server might complete a write operation of o with stale data ...

Keywords: arbitrary failures, fork-consistency, storage emulations

16 Speculative execution in a distributed file system

◆ Edmund B. Nightingale, Peter M. Chen, Jason Flinn

◆ November 2006 ACM Transactions on Computer Systems (TOCS), Volume 24 Issue 4

Publisher: ACM

Full text available: [PDF \(1.11 MB\)](#) Additional Information: [full citation, abstract, reference terms, review](#)

Bibliometrics: Downloads (6 Weeks): 16, Downloads (12 Months): 210, Citation

Speculator provides Linux kernel support for speculative execution. It allows multiple processes to see state by tracking causal dependencies propagated through interprocess communication. It guarantees consistency by preventing speculative ...

Keywords: Distributed file systems, causality, speculative execution

17 A survey of rollback-recovery protocols in message-passing systems

◆ E. N. (Mootaz) Enozahy, Lorenzo Alvisi, Yi-Min Wang, David B. Johnson

◆ September 2002 ACM Computing Surveys (CSUR), Volume 34 Issue 3

Publisher: ACM

Full text available: [PDF \(549.68 KB\)](#) Additional Information: [full citation, abstract, reference terms, review](#)

Bibliometrics: Downloads (6 Weeks): 49, Downloads (12 Months): 597, Citation

This survey covers rollback-recovery techniques that do not require special language constructs. In this survey we classify rollback-recovery protocols into *checkpoint-based* and *log-based*. *Checkpoint-based* protocols use a sequence of checkpoints to recover from a failure. *Log-based* protocols use a sequence of log entries to recover from a failure. The survey also covers the use of message logging for distributed systems. The survey concludes with a discussion of the challenges and opportunities for the future of distributed systems.

Keywords: message logging, rollback-recovery

18 Coyote: a system for constructing fine-grain configurable communication services

◆ Nina T. Bhatti, Matti A. Hiltunen, Richard D. Schlichting, Wanda Chiu

November 1998 ACM Transactions on Computer Systems (TOCS), Volume 16 Issue 4

Publisher: ACM

Full text available: [PDF](#) (290.21 KB)

Additional Information: [full citation](#), [abstract](#), [reference terms](#)

Bibliometrics: Downloads (6 Weeks): 6, Downloads (12 Months): 54, Citation Count: 12

Communication-oriented abstractions such as atomic multicast, group RPC, and protocols for location-aware mobile computing can simplify the development of complex applications built on distributed systems. This paper describes Coyote, a system ...

Keywords: x-kernal, configurable services, customization, event handlers, event-driven execution, microprotocols, mobile computing, modularity, multicast, protocols, remote procedure call

19 Total order broadcast and multicast algorithms: Taxonomy and survey

◆ Xavier Défago, André Schiper, Péter Urbán

December 2004 ACM Computing Surveys (CSUR), Volume 36 Issue 4

Publisher: ACM

Full text available: [PDF](#) (544.45 KB)

Additional Information: [full citation](#), [abstract](#), [reference terms](#)

Bibliometrics: Downloads (6 Weeks): 38, Downloads (12 Months): 485, Citation C

Total order broadcast and multicast (also called atomic broadcast/multicast) present an important primitive for distributed systems, especially with respect to fault-tolerance. In short, the primitive ensures that messages sent by different processes are, ...

Keywords: Distributed systems, agreement problems, atomic broadcast, atomic multicast, classification algorithms, fault-tolerance, global ordering, group communication, message passing, survey, taxonomy

20 DieHard: probabilistic memory safety for unsafe languages

Emery D. Berger, Benjamin G. Zorn

June 2006 PLDI '06: Proceedings of the 2006 ACM SIGPLAN conference on Programming language implementation

Publisher: ACM

Full text available: [PDF](#) (183.05 KB)

Additional Information: [full citation](#), [abstract](#), [reference terms](#)

Bibliometrics: Downloads (6 Weeks): 6, Downloads (12 Months): 92, Citation C

Applications written in unsafe languages like C and C++ are vulnerable to memory errors such as buffer overflows, dangling pointers, and reads of uninitialized data. Such errors can lead to program crashes, security vulnerabilities, and unpredictable ...

Keywords: DieHard, dynamic memory allocation, probabilistic memory safety, randomization, replacement

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